

What is claimed is:

1 For use in a model train, a control and motor arrangement,  
 2 comprising:  
 3 a motor, configured and arranged to generate a locomotive force for  
 4 propelling the model train; and *a*  
 5 a control arrangement, coupled to receive speed information from the  
 6 motor and configured and arranged to cause power to be applied to said motor at  
 7 different times based on a combination of a plurality of control signals and a pulse and/or  
 8 modulation signal.

*sub. 21*  
 1 2. A control and motor arrangement, according to claim 1,  
 2 wherein the control arrangement is coupled to receive information from  
 3 the motor.

*add*  
 1 3. A control and motor arrangement, according to claim 2,  
 2 wherein the information received from the motor includes at least one of  
 3 the following:  
 4 rotational speed information, and rotational position information.

*a*  
 1 4. A control and motor arrangement, according to claim 2,  
 2 wherein the control arrangement is configured and arranged to adjust an  
 3 amount of power supplied to the motor in response to changes in the information  
 4 received from the motor.

1 5. A control and motor arrangement, according to claim 2,  
 2 wherein the information received from the motor is provided to a sound  
 3 control arrangement.

1 6. A control and motor arrangement, according to claim 5,  
2 wherein the sound control arrangement is configured and arranged to  
3 select a sound effect for playing as a function of the information received from the motor.

1 7. A control and motor arrangement, according to claim 1,  
2 wherein the control arrangement is configured and arranged to simulate  
3 effects related to inertia.

1 8. A control and motor arrangement, according to claim 7,  
2 wherein the control arrangement is configured and arranged to, in  
3 response to power being removed from the model train, supply power to the motor from  
4 an alternate power source.

1 9. A control and motor arrangement, according to claim 8,  
2 wherein the alternate power source comprises a battery arrangement.

1 10. A control and motor arrangement, according to claim 7,  
2 wherein the control arrangement is configured and arranged to, in  
3 response to a train start command, gradually supply power to the motor.

1 11. A control and motor arrangement, according to claim 1,  
2 wherein the motor is selected from the group consisting of a DC can-type  
3 motor, an ODYSSEY<sup>TM</sup>-type motor, and a PULLMOR<sup>TM</sup>-type motor.

1 12. For use in a model train, a control and motor arrangement,  
2 comprising:  
3 a motor, configured and arranged to generate a locomotive force for  
4 propelling the model train; and  
5 a control arrangement, configured and arranged to provide a speed;

control signal to the motor generated as a function of speed information received from the motor, and further configured and arranged to provide the information received from the motor to a sound control arrangement.

13. For use in a model train, a control and motor arrangement, comprising:

a motor, configured and arranged to generate a locomotive force for propelling the model train;

a power arrangement, coupled to a model railroad track used by the model train and configured and arranged to supply power to the control and motor arrangement;

a radio control interface, configured to receive commands from a radio controller unit;

a process control arrangement, coupled to receive speed information from the motor and configured and arranged to generate a plurality of motor control signals based upon a combination of a plurality of speed feedback signals in a pulse modulation signal;

a motor control arrangement, responsive to said motor control signals and coupled to receive power from the power arrangement and configured and arranged to apply power to motor at different times;

a sound information arrangement, operatively coupled to receive rotational speed and positional information from the motor and to provide the rotational speed and positional information to a sound control arrangement for railroad sounds.

14. A control and motor arrangement, according to claim 13, further comprising a short circuit protection arrangement, operatively coupled to the motor and configured and arranged to remove power from the motor in response to a current flow exceeding a predefined threshold.

15. A control and motor arrangement, according to claim 13,

2 further comprising a memory, responsive to the process control  
3 arrangement and configured and arranged to store user-defined information and to  
4 provide the user defined information to the process control arrangement.

1 16. A control and motor arrangement, according to claim 15,  
2 wherein the memory comprises a nonvolatile memory.

1 17. A control and motor arrangement, according to claim 15,  
2 wherein the user-defined information includes a mapping of a motor  
3 rotational speed to a land speed of the train  
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